

P054 Translational regulation by polypyrimidine-tract-binding protein: identification of novel targets by RNA interference and cDNA microarray

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Polypyrimidine tract-binding protein (PTB) is an RNA-binding protein with multiple functions in the regulation of RNA processing and translation. It is a trans-acting factor for internal ribosome entry which can act as either an enhancer or repressor of ribosome recruitment. Most notably it enables continued expression of a number of genes during apoptosis when cap-dependent translation initiation is inhibited. In order to identify target genes whose expression is post-transcriptionally regulated by PTB and its neuronal counterpart, nPTB, PTB and/or nPTB were depleted in HeLa cells by RNA interference. Sucrose density gradient centrifugation was then used to separate polysome-associated mRNA from non-translated, sub-polysomal mRNA and the relative levels of translation for individual genes assessed by cDNA microarray analysis. This approach has enabled the identification of a number of mRNAs which undergo a change in their polysome-subpolysome distribution on PTB knockdown and are therefore possible candidates for PTB-dependent translational regulation.